

Math 9
Rational Number Challenge

Name _____

Date _____

1. If $A = -\frac{2}{5}$, $B = 0.6$, and $C = -1\frac{1}{2}$, then what is the value of each of the following?

a) $3A - 4C$

b) $(A - C)B$

c) $\frac{A - B}{B - A}$

d) $\frac{BC}{AB}$

e) $5A(2C - 7)$

f) $(B - C)(B - A)$

2. Consider the following orders of operation:

I. $A \times B \div C = A \times (B \div C)$

II. $(A \times B) \times C = A \times (B \times C)$

III. $(A \div B) \times C = A \div (B \times C)$

Which of the above *must* be true?

a) II and III

b) I and II

c) II only

d) I and III

e) I only

3. The only possible values of x belong to $\{2, 5, 8, \text{ or } 11\}$. The only possible values of y belong to $\{-8, -6, -4, \text{ or } -2\}$. What is the *greatest* ratio $\frac{x}{y}$?

a) $-\frac{11}{2}$

b) -1

c) $-\frac{1}{4}$

d) $-\frac{2}{11}$

e) 4

4. The expression $1.3x^2 - 5.7x + 0.86$ will have the *greatest* value for $x = \underline{\hspace{1cm}}$.

a) -8

b) -4

c) 0

d) 2

e) 15

5. A group of 7 people split \$1970 in lottery winnings. If each person put \$25 back into the pot to buy more tickets, then which of the following would determine how much money each person kept?

a) $(1970 - 25) \div 7$

b) $(1970 \div 7) + 25$

c) $(1970 + 25) \div 7$

d) $(1970 \div 7) - 25$

e) $(1970 \div 25) \times 7$

6. Evaluate each of the following for $A = 8$, $B = -3$, and $C = -5$.

a) $A - B - C$

b) $4(2A + C)$

c) $(B - C) - (A - C)$

d) $\frac{B - A - 13}{C - (-1)}$

7. Consider the following table showing the amount of homework time each grade spent on their particular math courses after each lesson:

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- a) If the Math 8 course has 110 lessons, then how many hours will a grade 8 student spend doing homework?
- b) How much longer per lesson does a grade 9 spend on homework than a grade 8?
- c) How much less time per lesson does a grade 10 spend than the total time for a grade 8 and a grade 9 combined?
8. Consider the following numbers.

- A) $0.781\overline{181}$
- B) $0.789\overline{789}$
- C) $0.781\overline{1}$
- D) 0.781

When they are listed in order from smallest to largest the correct order is:

- a) D, C, B, A b) D, A, B, C c) A, B, C, D d) C, A, B, D e) D, C, A, B